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Sperry, R. W. (1944) Optic nerve regeneration with return of vision in anurans.
Bio. Abs. **18**(2), 1140.

AUTHOR'S ABSTRACT

In larval and adult anurans of six different species vision was recovered after complete severance and regeneration of the optic nerve. Although the nerve was sectioned in a rough manner such as to preclude any neat approximation of the broken ends of individual fibers, and although microscopic examination indicated that fiber outgrowth across the nerve gap had been quite disorderly, the recovered visual perception was nevertheless well organized, not a randomly blurred confusion. Distinct, consistent responses to position and direction of movement of objects in the visual field were recovered.

The orientation of the recovered visuomotor responses, however, was dependent upon orientation of the retina. It was normal in animals whose retinas had been left in normal position, but was systematically reversed about the optic axis in animals whose eyes had been rotated through 180 degrees prior to nerve section.

The location of scotomas produced by localized lesions in the optic tectum before and after optic nerve regeneration indicated further that in regeneration optic fibers from different retinal loci reestablished functional connections in the same particular areas of the optic lobe to which they had originally projected.